

Patent claims

1. Process for producing in particular dimensionally stable
packs (10) made of (thin) cardboard, in particular hinge-lid
boxes for cigarettes, with an outer wrapper (13) made of
sealable and shrink-wrap film, with folding tabs (20, 21; 23,
5 24, 25, 26) of the outer wrapper (13) enclosing the pack (10)
being connected to one another in the region of overlaps by
thermal sealing, characterized in that the folding tabs (20,
21; 23, 24, 25, 26) are fixed in the folding position by
tacking or by tack connection, in particular by small surface-
10 area, spot or linear sealing and that subsequently the folding
tabs (20, 21; 23, 24, 25, 26) are connected to one another in
the region of overlapping by (full-surface) sealing.
2. Process according to Claim 1, characterized in that the
15 outer wrapper (13) is a shrink-wrap film, that is, a film which
shrinks when subjected to heat treatment, and that following
the (full-surface) sealing of the folding tabs (20, 21; 23, 24,
25, 26) the pack (10), being provided with the outer wrapper

(13), is subjected to a (further) heat treatment to generate shrinkage of the outer wrapper (13).

3. Process according to Claim 1 or 3, characterized by the
5 following features:

- a) a blank for forming the outer wrapper (13) is first folded around the pack (10) in a tubular shape in such a way that side tabs (20, 21) of the outer wrapper (13)
10 (partially) overlap one another,
- b) then the side tabs (20, 21) are connected to one another in the region of the overlap by tacking, in particular by spot seals (27) and/or by a narrow continuous or
15 interrupted sealing strip (28),
- c) thereafter the folding tabs assigned to an end wall (18) and/or a base wall (19), namely transverse tabs (23, 24) and longitudinal tabs (25, 26), are folded,
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- d) finally, the tabs assigned to the end wall (18) and/or to the base wall (19) are connected to one another in the region of an overlap by tacking, preferably by short, narrow tacking strips (29, 30).

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4. Process according to Claim 1 or 2, characterized by the following features::

- a) the outer wrapper (13), preferably a shrink-wrap film, is folded around the pack (10) in a tubular shape in the region of a folding turret (35) in such a way that partially overlapping side tabs (20, 21) are formed,
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- b) the side tabs (20, 21) of the outer wrapper (13) are connected to each other by a tacking seal in the region of the folding turret (35),
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- c) the outer wrapper (13) is then folded to completion, in particular while being pushed out of the folding turret (35) into a horizontal folding path (45) adjoining the folding turret (35),
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4) tacking connections for folding tabs formed in the region
5 of end wall (18) and/or base wall (19), namely transverse
provided in the region of an (upright) pack tower (49) by
means of tacking elements (51),

e) afterwards, as the packs (10) are moved upwards and
10 subsequently in a transverse, horizontal direction,
preferably full-surface seals are provided to connect the
folding tabs (20, 21; 23, 24, 25, 26) by means of sealing
tools (54) in the region of the pack tower (49) and
sealing jaws (55) in the region of a sealing path (50).

5. Process according to Claim 3, characterized in that, in
the region of end wall (18) and base wall (19), the folding
tabs are sealed by two spaced-apart, transverse tacking strips
(29, 30) which are provided in the region of an overlap of the
respective transverse tabs (23, 24) and longitudinal tabs (25,
20 26).

6. Apparatus for providing an outer wrapper (13) made of
thin film, preferably shrink-wrap film, on (dimensionally
stable) packs (10) made of (thin) cardboard or the like, in
particular on hinge-lid boxes for cigarettes, characterized by
the following features:

- a) a folding assembly, in particular folding turret (35),
30 for providing the outer wrapper (13) in tubular form on
the pack (10),
- b) by at least one tacking station (38, 39) for providing a
tacking seal in the region of an overlap (22) of side
tabs (20, 21) of the outer wrapper (13),
- 35 c) a further tacking station, following folding elements for
folding tabs (23..26) in the region of end wall (18) and
base wall (19) for the tack sealing of the folded folding
40 tabs, namely transverse tabs (23, 24) and longitudinal
tabs (25, 26),

- 8) at least one sealing station or sealing path (50) for the preferably full-surface sealing of the folding tabs (20, 21; 23, 24, 25, 26) in the region of the overlaps.
- 5 7. Apparatus according to Claim 6, characterized in that
tacking stations (38, 39) for tacking the side tabs (20, 21)
are assigned to the folding turret (35), with stationary
tacking elements (40, 43) outside the movement path of the
folding turret (35), it being possible for the tacking elements
10 (40, 43), for carrying out the tacking operation, to be moved
against the radially outwardly directed, folded side tabs (20,
21).
- 15 8. Apparatus according to Claim 6 or 7, characterized in
that folding of folding tabs of the end wall (18) and base wall
(19) can be completed in a horizontal folding path (45)
adjoining the folding turret (35), and in that further tacking
elements (51, 52) are arranged at the end of the folding path
(45) in order to provide the tacking strips (29, 30) in the
20 region of the folded transverse tabs (23, 24) and longitudinal
tabs (25, 26).
- 25 9. Apparatus according to Claim 6, characterized in that,
following the tacking operation, the outer wrapper (13) first
of all can be sealed over the full surface area in the region
of the side tabs (20, 21) by a sealing tool (54) and then, in
the region of a sealing path (50), can be sealed over the full
surface area on the end wall (18) and base wall (19) by sealing
jaws (55), and in that the packs (10) can then be conveyed
30 through a shrink-wrap station (56).

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List of designations

10	Pack	41	Sealing tool
11	Box part	42	Carrying arm
12	Lid	43	Tacking element
13	Outer wrapper	44	Push-out station
14	Front wall	45	Folding path
15	Rear wall	46	Folding finger
16	Side wall	47	Folding element
17	Side wall	48	Platform
18	End wall	49	Pack tower
19	Base wall	50	Sealing path
20	Side tab	51	Tacking element
21	Side tab	52	Tacking element
22	Overlap	53	Tacking jaw
23	Transverse tab	54	Sealing tool
24	Transverse tab	55	Sealing jaw
25	Longitudinal tab	56	Shrink-wrapping station
26	Longitudinal tab	57	Heating plate
27	Spot seal	58	Heating plate
28	Sealing strip	59	Heating plate
29	Tacking strip		
30	Tacking strip		
31	Pack path		
32	Blank unit		
33	Material web		
34	Blank conveyor		
35	Folding turret		
36	Pocket		
37	Folding finger		
38	Tacking station		
39	Tacking station		
40	Tacking element		